

Work Order ID 59532

Monday, June 07, 2010 10:32:27 AM



Page 1

Item ID: D212-664-101

Accept



Setup

Start



Revision ID:

Stop



Item Name: Crosstube Fwd

Start Date: 6/7/2010 Start Qty: 1.00



Cust Item ID:

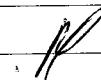
Required Date: 6/21/2010 Req'd Qty: 1.00



Customer:

Reference:

Approvals: Process Plan:



Date: 10-06-07 Tooling:

Date:

QC:

Date: SPC (Y/N):

Date:

Sequence ID/
Work Center IDOperation
DescriptionSet Up/
Run Hours

Tool ID

Tool #

Plan
CodeAccept
QtyReject
QtyReject
NumberInsp.
Stamp

Draw Nbr	Revision Nbr
D212-664-141	Rev D

100 0.00



DOCUMENT CONTROL

DC

Document Control

Memo

0.00

Photocopy bluefile and create labels as per PPP D212-664-101 CHG003

S.06-07-16

110



BENDING MACHINE - CROSSTUBES

Pick Kit
Packaging

0.00

Packaging

Memo

0.00

Packaging

(X) X MB 10-06-22

120



CNC Bend 2

0.00

CNC Alpha 160 Bender

Memo

0.00

Bend tube as per Dwg D212-664-141 using CNC bender program 212-fw and Folio D212-664-101

(X) X MB 10-06-22

W/O:		WORK ORDER CHANGES						
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector	

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA _____ Date: _____
 Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
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NOTE: Date & initial all entries

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Customer:

Reference:

Approvals: Process Plan: _____

Date: _____

Tooling: _____

Date: _____

QC: _____

Date: _____

SPC (Y/N): _____

Date: _____

Sequence ID/
Work Center IDOperation
DescriptionSet Up/
Run Hours

Tool ID

Tool #

Plan
Code

Accept

Reject

Reject

Insp.
Stamp

130

QC15- Crosstube Dimensional Check

0.00

S 10/06/23



QC

Memo

0.00

Quality Control

140

Crosstubes

0.00

Crosstubes

Memo

0.00

Crosstubes

1-Drill pilot holes in tube as per Dwg D212-664-141 using drill Jig DT8548 & DT8549,using drill table DT8577, set-up towers in hole #7 as per QSI 10

2-Ream hole to finish size in tube as per Dwg D212-664-141 using drill Jig DT8548 & DT8549. Check dimensions between holes, both sides on both cuffs, to ensure alignment with saddle holes.

3-Scribe part # and batch # using vibrating stylus as per Dwg D212-664-141

4-Deburr & Inspect for surface damage. Repair damage within limits as per Dwg D212-664-141

M 06/23

- AWM 10-06-23

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Reference:

Approvals: Process Plan: _____

Date: _____

Tooling: _____

Date: _____

QC: _____

Date: _____

SPC (Y/N): _____

Date: _____

Sequence ID/
Work Center IDOperation
DescriptionSet Up/
Run Hours

Tool ID

Tool #

Plan
CodeAccept
QtyReject
QtyReject
NumberInsp.
Stamp

150



Crossstubes Chemical Conversion

0.00

1 —

*Ah M
10-06-23*

HandFXtube

Hand Finishing Crosstubes

Memo

0.00

Chemical Conversion Coat within 24 hours of bending and drilling

160



QC5- Inspect part completeness to step on W/O

0.00

8.0/06/23
2 —

QC

Quality Control

Memo

0.00

170



Outsource process - NDT per QSI038 4.1

0.00

3 10/06/28 (1)

Outsource2

Outsource process - NDT

Memo

0.00

Liquid Penetrant Inspection as per QSI 038
 Issue P/O: 12164
 LPI as per ASTM 1417 Level 2
 Attach copy of NDT results to work order

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Customer:

Reference:

Approvals: Process Plan: _____

Date: _____

Tooling: _____

Date: _____

QC: _____

Date: _____

SPC (Y/N): _____

Date: _____

Sequence ID/
Work Center IDOperation
DescriptionSet Up/
Run Hours

Tool ID

Tool #

Plan
Code

Accept

Reject

Reject

Insp.
Stamp

180



Receive & Inspect for Damage & Mat'l Certs

0.00

PC/06/28 *(1)*

Packaging

Packaging

Memo

0.00

Packaging

Ensure copy of NDT results attached to work order.

190



QC5- Inspect part completeness to step on W/O

0.00

MJ *10 06 28 01*

QC

Quality Control

Memo

0.00

Inspect for damage & ensure results are as per Dwg D212-664-141

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Cust Item ID:

Required Date: 6/21/2010 Req'd Qty: 1.00



Customer:

Reference:

Approvals:	Process Plan:	Date:	Tooling:	Date:
	QC:	Date:	SPC (Y/N):	Date:

Run

Start



Stop



Sequence ID/
Work Center ID

Operation
Description

Set Up/
Run Hours

Tool ID

Tool #

Plan
Code

Accept
Qty

Reject
Qty

Reject
Number

Insp.
Stamp

200



Spray Painting per QSI005 4.2

0.00

SprayPaint

Memo

0.00

1-Prime inside and outside crosstube as per QSI 005 4.2
2-Paint outside crosstube with White Imron as per QSI 005 4.2

PRIME:

Start Time: 10:30

Finish Time: 11:30

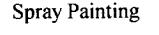
WJL

10

06

30 (1)

SprayPaint



Spray Painting

PAINT:

Start Time: 3:30

Finish Time: 4:30

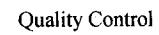
210



QC14- Inspect Spray Paint

0.00

QC



Quality Control

Memo

0.00

Then, Wrap in plastic bag to protect from scratches

25

0 - 0F - 01

W/O:		WORK ORDER CHANGES						
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector	

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

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Monday, June 07, 2010 10:32:27 AM

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Start



Revision ID:

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Item Name: Crosstube Fwd

Start Date: 6/7/2010 Start Qty: 1.00



Cust Item ID:

Required Date: 6/21/2010 Req'd Qty: 1.00



Customer:

Reference:

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____

QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Run

Start



Stop

Sequence ID/
Work Center ID

220

Operation
Description

Crosstubes

Crosstubes

Crosstubes

Crosstubes

Crosstubes

230



QC

Quality Control

240



Packaging

Packaging

QC5- Inspect part completeness to step on W/O

Set Up/
Run Hours

0.00

Tool ID

Tool #

Plan
CodeAccept
QtyReject
QtyReject
NumberInsp.
Stamp

0.00

0.00

6/6/10

m/

10

07

05

(1)

0.00

0.00

6/1

6/7

0

0

0

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0

0

0.00

0.00

6/7

0

0

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0

0

0

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

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Item Name: Crosstube Fwd

Start Date: 6/7/2010 Start Qty: 1.00



Cust Item ID:

Required Date: 6/21/2010 Req'd Qty: 1.00



Customer:

Reference:

Approvals: Process Plan: _____

Date: _____

Tooling: _____

Date: _____

Run Start



QC: _____

Date: _____

SPC (Y/N): _____

Date: _____

Stop

Sequence ID/
Work Center IDOperation
DescriptionSet Up/
Run Hours

Tool ID

Tool #

Plan
CodeAccept
QtyReject
QtyReject
NumberInsp.
Stamp

250

QC4- 100% Inspect kits for completeness

0.00

S.010716



QC

Memo

0.00

(X)

Quality Control

260

Packaging

0.00

Rev
E

Packaging

Memo

0.00

Packaging

Identify and pack for shipping as per PPP D212-664-101

10-07-16

3J

100719

270

QC21- Final Inspection - Work Order Release

0.00



QC

Memo

0.00

Quality Control

MF
10-7-16

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____
 Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

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NOTE: Date & initial all entries

Picklist Print

Page 1 /3

Monday, June 07, 2010 10:32:31 AM

Work Order ID: 59532



Parent Item: D212-664-101



Parent Item Name: Crosstube Fwd

Start Date: 6/7/2010

Required Date: 6/21/2010

Comments: IPP Rev:E 04.02.16 Reformat KJ/DS

Start Qty: 1.00

Required Qty: 1.00

IPP Rev:F 06-03-29 Remove Coments on Pick List JLM
IPP Rev:G 07-04-30 As per Rev C JLM

Component Item ID/ D212-664-101TRN	Replacement Manufactured	Mfg/ Manufactured	Bin No	Primary Last	Route 110	Unit of Each	Qty on 2.0000	Qty per Kit 1	Total 1	Qty	Date MB 10-06-22	Status
										B-59752		
Crosstube Turning Detail												
					<u>Location</u>	<u>Loc Qty</u>	<u>Loc Code</u>					
					LG	2						
					58655	1						
					58656	1						
D3595-063-450		Manufactured	No		230	Each	33.9790	4	4.210526			
RUBBER CUSHION												
					<u>Location</u>	<u>Loc Qty</u>	<u>Loc Code</u>					
					LG	33.97897368						
					53775	9.97897368						
					<u>58161</u>	24						
MS21920-25		Purchased	No		220	Each	99.0000	4	4			
Clamp(per MIL-DTL-8783C)												
					<u>Location</u>	<u>Loc Qty</u>	<u>Loc Code</u>					
					LG	50						
					<u>114759</u>	50						
					ST451	49						
					113281	9						
					113282	18						
					113744	1						
					114141	21						

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____
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NOTE: Date & initial all entries

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NOTE: Date & initial all entries

Picklist Print

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Monday, June 07, 2010 10:32:31 AM

Work Order ID: 59532



Parent Item: D212-664-101



Parent Item Name: Crosstube Fwd

Start Date: 6/7/2010

Required Date: 6/21/2010

Comments: IPP Rev:E 04.02.16 Reformat KJ/DS

Start Qty: 1.00

Required Qty: 1.00

IPP Rev:F 06-03-29 Remove Coments on Pick List JLM

IPP Rev:G 07-04-30 As per Rev C JLM

Component Item ID/ MS21042L6	Replacement Barcode	Mfg/ Purchased	Bin No	Primary	Last	Route 240	Unit of Each	Qty on 303.0000	Qty per Kit 6	Total 6	Qty Barcode	Date Signature	Status
---------------------------------	------------------------	-------------------	-----------	---------	------	--------------	-----------------	--------------------	------------------	------------	----------------	-------------------	--------

Nut

Location	Loc Qty	Loc Code
ST300	303	
111578	103	
114495	200	

M111078

S AN960JD616 NAS1149D0663J Purchased No

Location	Loc Qty	Loc Code
ST300	303	
111578	103	
114495	200	

Location	Loc Qty	Loc Code
ST300	303	
111578	103	
114495	200	

Location	Loc Qty	Loc Code
ST300	303	
111578	103	
114495	200	

Location	Loc Qty	Loc Code
ST300	303	
111578	103	
114495	200	

Location	Loc Qty	Loc Code
ST300	303	
111578	103	
114495	200	

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ST300	303	
111578	103	
114495	200	

Location	Loc Qty	Loc Code
ST300	303	
111578	103	
114495	200	

Location	Loc Qty	Loc Code
ST300	303	
111578	103	
114495	200	

Location	Loc Qty	Loc Code
ST300	303	
111578	103	
114495	200	

Location	Loc Qty	Loc Code
ST300	303	
111578	103	
114495	200	

Location	Loc Qty	Loc Code
ST300	303	
111578	103	
114495	200	

Location	Loc Qty	Loc Code
ST300	303	
111578	103	
114495	200	

Location	Loc Qty	Loc Code
ST300	303	
111578	103	
114495	200	

Location	Loc Qty	Loc Code
ST300	303	
111578	103	
114495	200	

Location	Loc Qty	Loc Code
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114495	200	

Location	Loc Qty	Loc Code
ST300	303	
111578	103	
114495	200	

Location	Loc Qty	Loc Code
ST300	303	
111578	103	
114495	200	

Location	Loc Qty	Loc Code
ST300	303	
111578	103	
114495	200	

Location	Loc Qty	Loc Code
ST300	303	
111578	103	
114495	200	

Location	Loc Qty	Loc Code
ST300	303	
111578	103	
114495	200	

Location	Loc Qty	Loc Code
ST300	303	
111578	103	
114495	200	

Location	Loc Qty	Loc Code
ST300	303	
111578	103	
114495	200	

Location	Loc Qty	Loc Code
ST300	303	
111578	103	
114495	200	

Location	Loc Qty	Loc Code
ST300	303	
111578	103	
114495	200	

Location	Loc Qty	Loc Code
ST300	303	
111578	103	
114495	200	

Location	Loc Qty	Loc Code
ST300	303	
111578	103	
114495	200	

Location	Loc Qty	Loc Code
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111578	103	
114495	200	

Location	Loc Qty	Loc Code
ST300	303	
111578	103	
114495	200	

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DART AEROSPACE LTD

Work Order: 59532

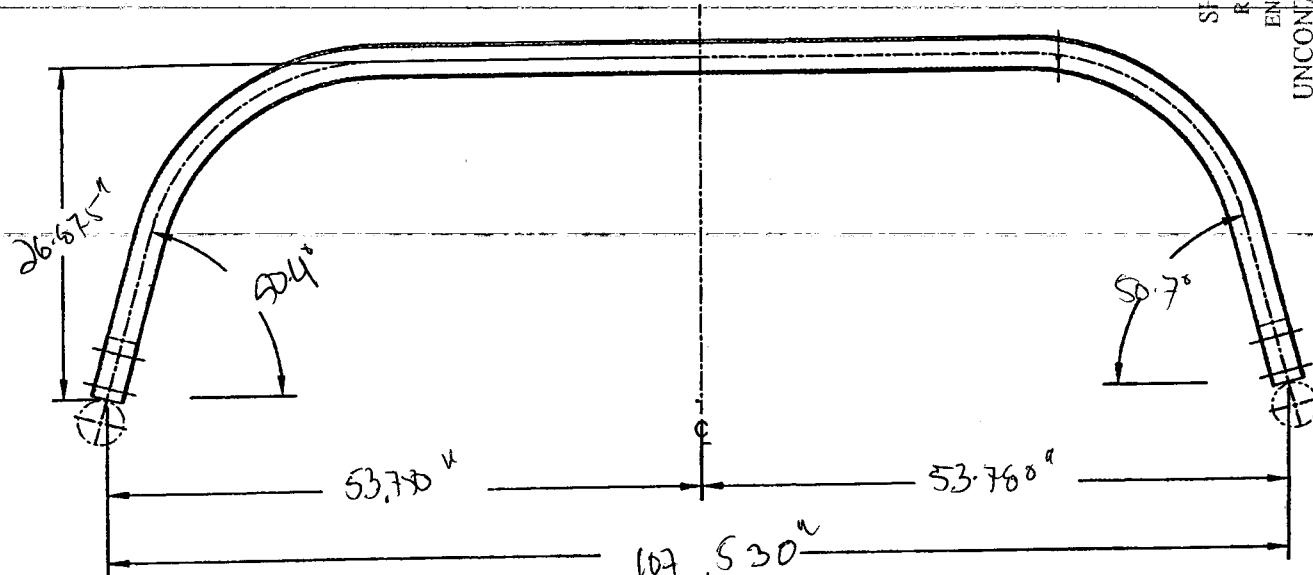
Description: Crosstube High Fwd (205/212/412)

Part Number: D212-664-101

Inspection Dwg: D212-664-141 Rev: D

Page 1 of 1

Required Dimension	Min	Max
Height	26.79	27.05
1/2 Span	53.59	53.85
Angle	49	52
Total Span	107.18	107.7



SHOP COPY
RETURN TO
ENGINEERING
UNCONTROLLED COPY
SUBJECT TO AMENDMENT
WITHOUT NOTICE
WORK ORDER
NO.

Comments

QC15 Inspection	S
Date	10/06/02

Rev	Date	Change	Revised by	Approved
A	07.02.06	New Issue	KJ/JM	
B	07.05.31	Dimensions updated per Dwg Rev C	KJ/JM	
C	10.04.01	Dwg Rev updated	KJ	J

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D

Item	Qty -141	Qty -141B	Part Number	Description
1	X		D212-664-141	CROSSTUBE ASSEMBLY (205/212/412 HIGH FWD)
2		X	D212-664-141B	CROSSTUBE ASSEMBLY (214 HIGH FWD)
3	1	1	D6005-128	CROSSTUBE
4	2	2	D2893-1	SUPPORT
5	4	4	D3595-063-450	RUBBER CUSHION
6	4	4	MS21920-25	CLAMP (OR MS21920-26)
7	A/R	A/R	MAGNOBOND 6398	ROCKWELL SPECIFICATION RBO-120-023 ADHESIVE (TEXTRON/BELL SPEC. 299-947-100, TYPE II, CLASS 2 ADHESIVE)

GENERAL NOTES:

- 1) MATERIAL: MANUFACTURED FROM D6005-128
FINISHED LENGTH = 126.514±0.020
- 2) FINISH: CHEMICAL CONVERSION COAT PER DART QSI 005 4.1
PRIME INSIDE AND OUTSIDE PER DART QSI 005 4.2
PAINT OUTSIDE PER DART QSI 005 4.2
- 3) TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED.
- 5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX.
- 6) IDENTIFICATION: SCRIBE DART PART NUMBER "D212-664-XXX" AND BATCH NUMBER ON INSIDE OF CUFF USING VIBRATING STYLUS
- 7) WEIGHT: D212-664-141 = 33.6 lbs (PER IIN-D212-664)
D212-664-141B = 33.6 lbs (PER IIN-D212-664)
- 8) PART IS SYMMETRIC ABOUT CENTERLINE.
- 9) RUN CUTTER OFF PART. BLEND OUT EDGE LONGITUDINALLY, TRANSITION SHOULD BE SMOOTH.
- 10) BEND PROGRESSIVELY WITH A MINIMUM OF 3 PASSES. MAXIMUM TUBE FLATTENING DUE TO BENDING IS 6% BASED ON O.D.
- 11) LIQUID PENETRANT INSPECT OUTSIDE SURFACE OF CROSSTUBE PER QSI 038.
- 12) INSTALL D2893-1 SUPPORT USING 0.03" TO 0.06" THICK LAYER OF MAGNOBOND 6398 TO THE SURFACE OF D2893-1 THAT WILL BE IN CONTACT WITH THE CROSSTUBE PER QSI 015. LET CURE FOR 12 HOURS AFTER INSTALLATION AND PRIOR TO PACKAGING.
- 13) INSTALL MS21920-25 CLAMPS (OR -26) WITH D3595-063-450 RUBBER CUSHIONS TO SECURE THE D2893-1 SUPPORT ON TOP SIDE OF THE CROSSTUBE. ENSURE CLAMPS ARE OPPOSITE OF CROSSTUBE SUPPORT.
- 14) EXTREME CARE MUST BE TAKEN TO PROTECT THE OUTSIDE SURFACE OF THE TUBE. THE OUTSIDE SURFACE MUST BE SMOOTH AND FREE FROM SURFACE DEFECTS SUCH AS SCRATCHES, NICKS, OR DENTS. DEFECTS UP TO 0.005" MAY BE BLENDED OUT LONGITUDINALLY. CIRCUMFERENTIAL GRIND MARKS ARE UNACCEPTABLE.
- 15) TORQUE CLAMPS 80 TO 100 IN-LB. ENSURE AT LEAST 1.5 THREADS SHOWING IN SAFETY AND THAT NUT HAS NOT BOTTOMED-OUT AFTER TORQUING.

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SUBJECT TO AMENDMENT
WITHOUT NOTICE
WORK ORDER

NO. 59532
BS 10-6-07

RELEASED
2009-10-29
MD

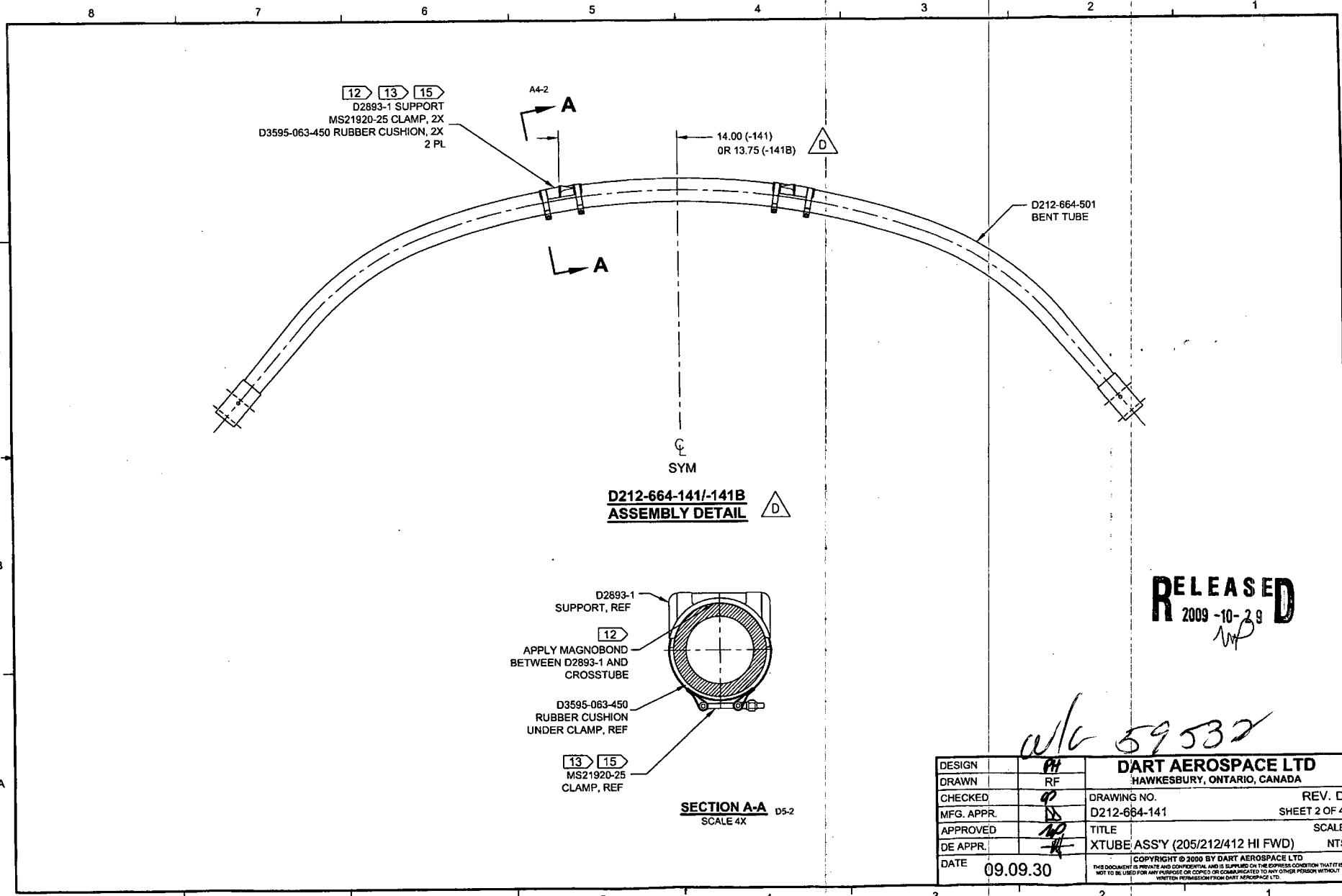
D	REFORMAT/REVISE GENERAL NOTES/PART LIST; REORGANIZED VIEWS AND REFORMATTED DRAWING TO CURRENT STANDARDS; ADD -141B (ZN B4-2, D4-2); REMOVED REF & ADD TOLERANCES (ZN B4-3, C6-3, C8-3 & B6-3); RELOCATED FLAG #6 PER PAR 08-046 (ZN A5-3); MOVED TURNING DETAIL & UPDATED TOLERANCE TO SHEET 4	RF	09.09.30
C	REMOVE -851 ABRASION STRIP; ADD MAGNOBOND 6398, CUSHION, REVERSE CLAMPS	PH	07.03.08
B	ADD HOLES FOR COMPATABILITY WITH BHT/AA SKIDTUBES	PH	05.02.04
A	NEW ISSUE	PH	00.12.12
REV.	DESCRIPTION	BY	DATE
DESIGN	<i>PH</i>	DART AEROSPACE LTD	
DRAWN	RF	HAWKESBURY, ONTARIO, CANADA	
CHECKED	<i>PD</i>	DRAWING NO.	REV. D
MFG. APPR.	<i>DS</i>	D212-664-141	SHEET 1 OF 4
APPROVED	<i>ND</i>	TITLE	SCALE
DE APPR.	<i>ND</i>	XTUBE ASSY (205/212/412 HI FWD)	NTS
DATE	09.09.30	COPYRIGHT © 2009 BY DART AEROSPACE LTD THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY OTHER PURPOSE OR DISCLOSED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD.	

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____
 Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries



DESIGN	PH	DART AEROSPACE LTD
DRAWN	RF	HAWKESBURY, ONTARIO, CANADA
CHECKED	P	REV. D
MFG. APPR.	BB	DRAWING NO. D212-664-141 SHEET 2 OF 4
APPROVED	MM	TITLE XTUBE ASS'Y (205/212/412 HI FWD) NTS
DE APPR.	RH	DATE 09.09.30

w/c 59532

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2009-10-29
W/P

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

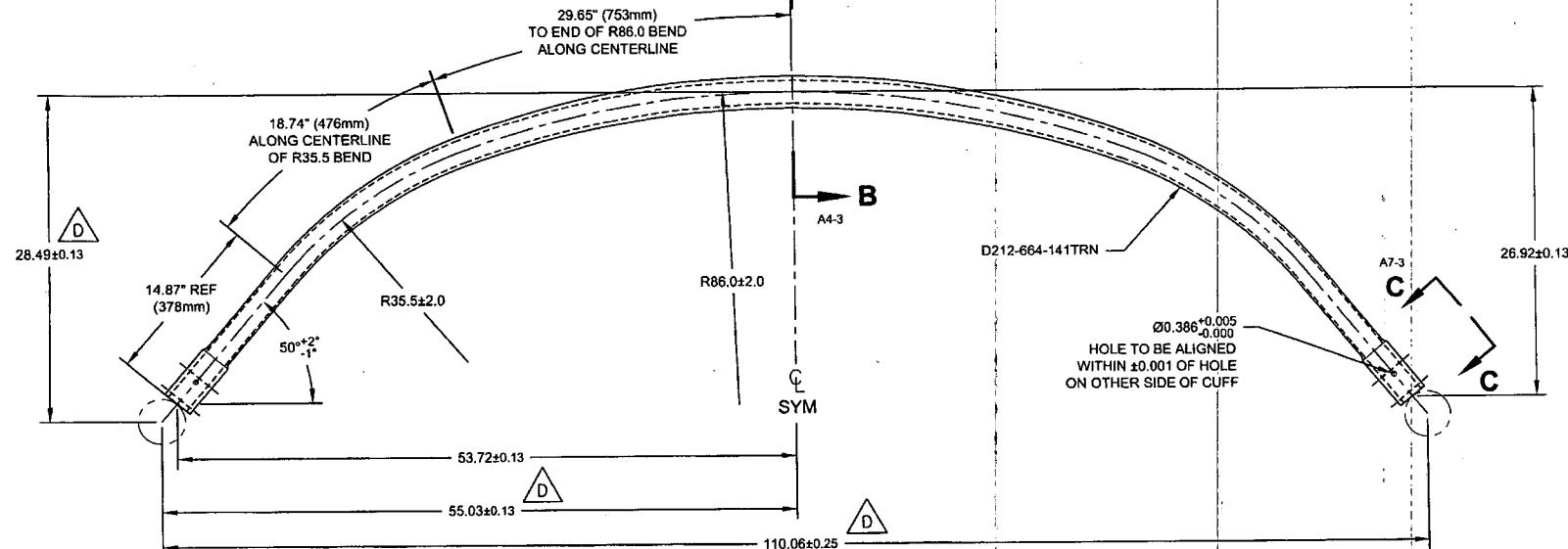
Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____
 Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

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DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

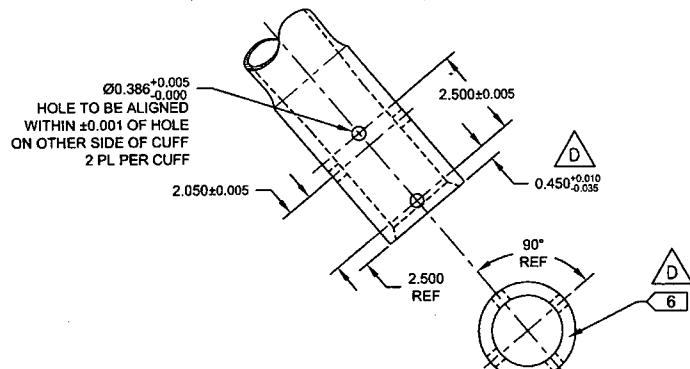
8 7 6 5 4 3 2 1

D D C C B B A A



D212-664-501
BENDING AND DRILLING DETAIL

10 D



SECTION B-B C4-3
SCALE 4X

VIEW C-C: CUFF DETAIL C2-3
SCALE 3X

RELEASED
2009-10-29

DESIGN	PH	DART AEROSPACE LTD
DRAWN	RF	HAWKESBURY, ONTARIO, CANADA
CHECKED	Q	DRAWING NO.
MFG. APPR.	RS	D212-664-141
APPROVED	RP	REV. D
DE APPR.	SH	SHEET 3 OF 4
DATE	09.09.30	TITLE
		X TUBE ASS'Y (205/212/412 HI FWD) NTS

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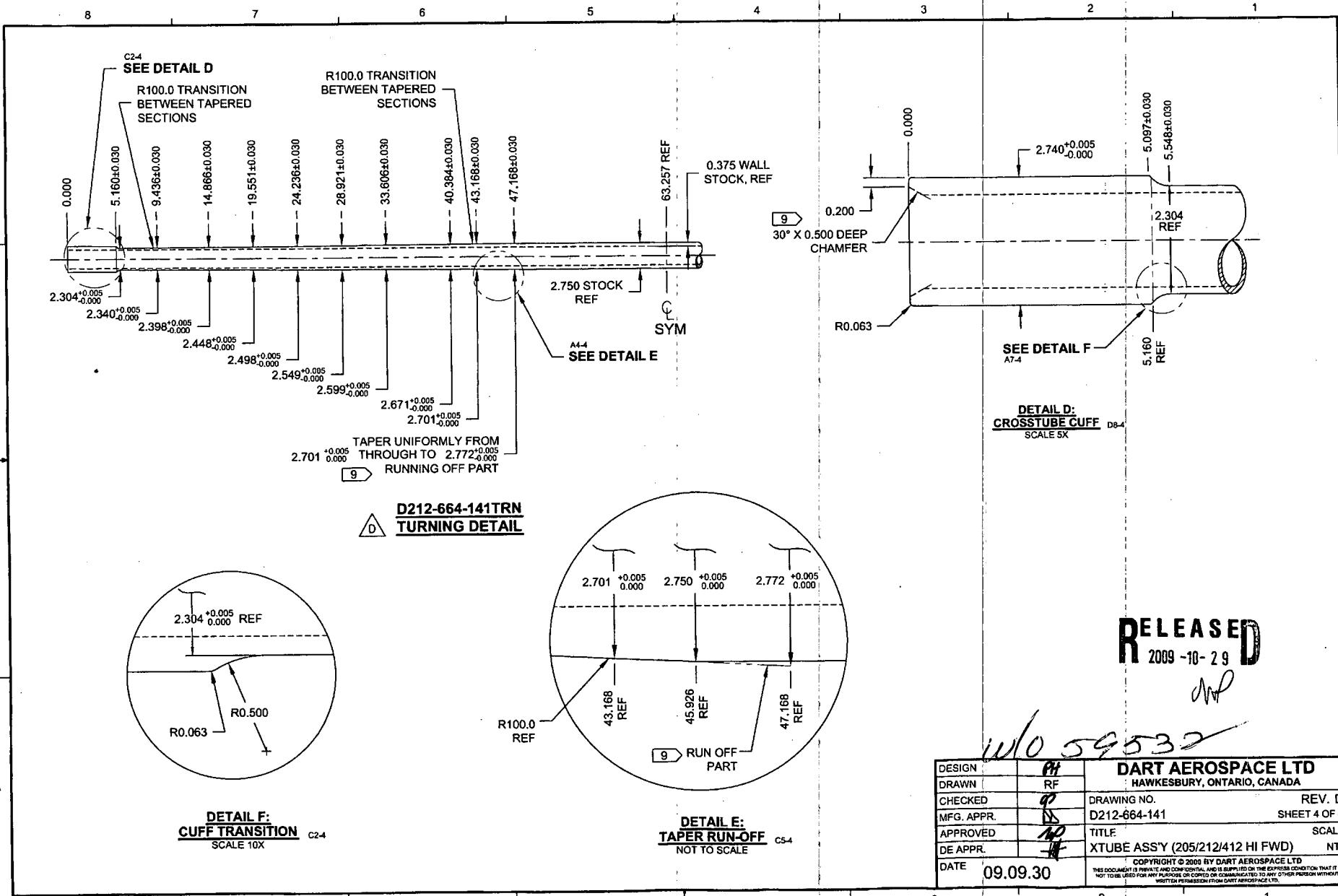
8 7 6 5 4 3 2 1

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			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries



DESIGN	PH	DART AEROSPACE LTD
DRAWN	RF	HAWKESBURY, ONTARIO, CANADA
CHECKED	PP	DRAWING NO. REV. D
MFG. APPR.	ND	D212-664-141 SHEET 4 OF 4
APPROVED	AD	TITLE SCALE
DE APPR.	HF	XTUBE ASS'Y (205/212/412 HI FWD) NTS
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			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries



LIQUID PENETRANT TEST REPORT

P- 153281

CLIENT

ATTENTION

ADDRESS

PROJECT

ITEM(S) EXAMINED

DART Aerospace

LINDA / CHANTEL

1270 ABERDEEN, HAWKESBURY

ON.

KCA 1K7

F. P.I. ON CROSS TUBES

4 X 4 PCS

DATE

ACUREN JOB NO.

PO/WO NO.

WORK LOCATION

ACCEPTANCE STD.

PAGE

1 OF 1

TIME

AM PM

TUE 24-10-10

188-10-0771

U21647-

HAWKESBURY - PLANT

ASTM 1417 REV./DATE 2007

JOB DESCRIPTION	PROCEDURE NO. LT-0002 REV./DATE	TECHNIQUE NO. LT-TECH 2 REV./DATE
PART NO.	MATERIAL <u>ALUMINUM</u> THICKNESS <u>VARIOUS</u>	
SCOPE	<u>WET FLUORESCENT LIQUID PENETRANT INSPECTION</u> <u>CARRIED OUT 100% EXTERNAL</u>	
TEST DETAILS		
METHOD	<input checked="" type="checkbox"/> FLUORESCENT <input type="checkbox"/> VISIBLE	<input checked="" type="checkbox"/> WATER WASH <input type="checkbox"/> SOLVENT REMOVABLE <input type="checkbox"/> POST EMULSIFIED
FAMILY BRAND	<u>MAGNAFLUX</u>	
PENETRANT	<u>ZL 07</u>	MINIMUM DWELL TIME <u>45-70</u> MIN.
PENETRANT REMOVER	<u>H2O</u>	MINIMUM DRY TIME <u>>10</u> MIN.
DEVELOPER	<u>SKD 52</u>	MINIMUM DWELL TIME <u>10</u> MIN.
DEVELOPER TYPE	<input checked="" type="checkbox"/> NON AQUEOUS <input type="checkbox"/> AQUEOUS <input type="checkbox"/> DRY	<u>L-1 BINO</u> LIGHT METER S/N <u>1098866</u> CAL DUE DATE <u>OCT 19</u> <u>2010</u>

TEST SURFACE		
SURFACE CONDITION	<input type="checkbox"/> AS GROUND <input type="checkbox"/> AS WELDED	<input type="checkbox"/> MACHINED <input type="checkbox"/> SHOT BLASTED <input type="checkbox"/> CLEAN BARE METAL
SURFACE TEMPERATURE	<input type="checkbox"/> < -4°C/ 20°F <input type="checkbox"/> -4°C/ 20°F TO 10°C/50°F	<input type="checkbox"/> 10°C/50°F TO 52°C/125°F <input type="checkbox"/> > 52°C/125°F

RESULTS- <input type="checkbox"/> METRIC <input checked="" type="checkbox"/> IMPERIAL		
---	--	--

<u>1 -CROSS TUBE -W.O. 59522 ✓</u>	
<u>1 -CROSS TUBE-W.O. 59523 ✓</u>	
<u>1 -CROSS TUBE-W.O. 59531 ✓</u>	
<u>1 -CROSS TUBE-W.O. 59532 ✓</u>	
<u>2-A</u>	
<u>2-MV</u>	
	<u>10 06 28</u>

Scope of Services

The agreement of Acuren Group Inc. to perform services extends only to those services provided for in writing. Under no circumstances shall such services extend beyond the performance of the requested services. It is expressly understood that all descriptions, comments and expressions of opinion reflect the opinions or observations of Acuren Group Inc. based on information and assumptions supplied by the owner/operator and are not intended nor can they be construed as representations or warranties. Acuren Group Inc. is not assuming any responsibilities of the owner/operator and the owner/operator retains complete responsibility for the engineering, manufacture, repair and use decisions as a result of the data or other information provided by Acuren Group Inc. In no event shall Acuren Group Inc.'s liability in respect of the services referred to herein exceed the amount paid for such services.

Standard of Care

In performing the services provided, Acuren Group Inc. uses the degree, care and skill ordinarily exercised under similar circumstances by others performing such services in the same or similar locality. No other warranty, expressed or implied, is made or intended by Acuren Group Inc.

SIGNATURES

CLIENT REPRESENTATIVE	<u>Ian Titley</u> PRINT	<u>Ruth</u> SIGNATURE	DTR # <u>E63362</u>
TECHNICIAN (SIGNATURE):	<u>CT</u>		REPORT REVIEWED BY:
NAME (PRINT):	<u>Mike Johnston</u> 1 ST TECHNICIAN	2 ND TECHNICIAN	NAME <u></u> INITIALS <u></u>
CGSB LEVEL	<u>SNT LEVEL</u>	CGSB LEVEL <u>SNT LEVEL</u>	
CGSB REG. NO.	<u>6606</u>	CGSB REG. NO. <u></u>	

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PT Sept.2005

Work Order ID 59532

Page 1

Monday, June 07, 2010 10:32:27 AM

Item ID: D212-664-101

Accept



Setup

Start



Revision ID:

Item Name: Crosstube Fwd

Stop



Start Date: 6/7/2010 Start Qty: 1.00



Cust Item ID:

Required Date: 6/21/2010 Req'd Qty: 1.00



Customer:

Reference:

Approvals: Process Plan: *[Signature]*Date: *6/6/07* Tooling: _____

Date: _____

Run

Start



QC: _____

Date: _____ SPC (Y/N): _____

Date: _____

Stop

Sequence ID/
Work Center IDOperation
DescriptionSet Up/
Run Hours

Tool ID

Tool #

Plan
CodeAccept
QtyReject
QtyReject
NumberInsp.
Stamp

Draw Nbr	Revision Nbr
D212-664-141	Rev D

100



DOCUMENT CONTROL

DC

Memo 0.00

Document Control

Photocopy bluefile and create labels as per PPP D212-664-101 CHG003

*CZ**10/7/7*

110



Pick Kit

0.00

Packaging

Memo 0.00

Packaging

Packaging

*IX**MB 10-06-22*

120



BENDING MACHINE - CROSSTUBES

0.00

CNC Bend 2

Memo 0.00

CNC Alpha 160 Bender

Bend tube as per Dwg D212-664-141 using CNC bender program 212-fw and Folio D212-664-101

*IX**MB 10-06-22*